

Amendments to the Specification

Amendment by Replacement of the following Sections of the Specification:

Delete the Background of the Invention Section beginning on page 1 and ending on page 2 of the Specification and Replace with the following Replacement Section:

BACKGROUND OF THE INVENTION

This invention relates to closing ring assemblies for securing lids and covers on the open heads of cylindrical drums that are generally used for storage and transporting materials. It deals particularly with improvements to ~~the standard~~ conventional annular split and multi-section closing rings used for securing drum lids to the end of open head drums.

Open head drums are commonly used by industry as storage and transportation containers. Typically, these drums have a rolled upper rim at the top opening and the lids have a mating peripheral lip that fit over the drum's upper rim. A sealing gasket is generally installed between the drum's upper rim and the lids peripheral lip. To close a drum, gasket and lid are installed on the drum and an a ~~conventional one and multi section~~ annular split or single closing ring is installed over the lid's peripheral lip. The single ring is then compressed to bring the opposing ends of the single ring in near abutting relation to secure the lid in place and compress the gasket. This creates a seal between the drum and the lid and secures the contents of the drum. The closing ring ~~is~~ maybe a split or multi section ring, generally of metal, which is secured on the drumhead by ~~one of various~~ adjustable fastener means for connecting and compressing the closing ring opposing ends of the ring toward each other. Typically, a pair of lugs are welded to the opposite ends of the closing ring, one on each side of the annular split. The welded lugs are drawn together by means of tightening a bolt and nut. However, there are other methods of fastening, securing, and locking the annular split ring, such as are shown in U.S. Patent Numbers 4,134,609, 4,200,316, 4,413,850, 4,957,317, and 5,215,206.

One of the major problems encountered with the conventional closing ring assembly described above is that all too frequently people installing and removing the current standard closing ring assembly get their fingers caught and pinched. The pinch points are created while prying the closing ring open while ~~and~~ fitting it over and onto ~~on~~ the drum lid's peripheral lip or prying the closing ring open for removal. Fingers get caught between the ring and lid due to the spring pressure resistance from the closing ring.

My invention ~~addresses~~ provides a means for safer installation and removal of conventional annular drum-closing rings ~~and will help~~ that helps prevent the pinch points that exist when installing with the ~~current standard~~ conventional drum-closing ~~ring assembly~~ rings.

Delete the Brief Summary of the Invention Section beginning on page 2 of the Specification and replace with the following Replacement Section:

BRIEF SUMMARY OF INVENTION

This invention is directed to the improvement of ~~the~~ annular split and multi section drum-closing ~~ring~~ rings. The object is to make a drum-closing system that is much safer to install and remove. This is accomplished by ~~making the closing ring~~ providing an annular two-section ring [.] that is positionable around and on the lip of the lid and rim of the drum. This ~~eliminates~~ An annular two-section ring will eliminate the spring pressure resistance of current one-section closing rings and thus prevent pinch points that exist occurs when installing and removing ~~the one-section rings[.]~~ conventional annular closing rings. Rings of more than two annular ring sections can also be used to accomplish the same goal as the two-section drum-closing ring. But, rings of more than two sections could be more difficult to install and cause a greater problem in sealing the drum.

Delete the Brief Summary of the Several Views of the Drawing on page 3 of the Specification and replace with the following Replacement Section:

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE ~~DRAWING~~ DRAWINGS

~~This multi section drum closing ring invention is an improvement of the conventional one section annular split drum closing ring. The figures listed below illustrate the basic and primary differences from the conventional drum closing ring. These differences are basically an annular two section ring versus the one section ring and the use of a hinge or other standard fastening method on the additional annular ring separations.~~

FIG. 1 is ~~the~~ a plan view of ~~an~~ a conventional annular two-section drum-closing ring utilizing a conventional drum-closing ring fastening method, nut and-bolt style, on each annular separation side[.] ;

FIG. 2. is ~~the~~ a plan view of an annular two-section drum-closing ring in accordance with the invention utilizing a hinge means of one closing ring annular separation and a conventional adjustable drum ring fastening method means of nut-and bolt-style ~~on the~~ at an opposite annular separation[.] ;

FIG. 3. is a cross sectional view taken along lines 3-3 in Fig. 2 illustrating the C-shaped cross section of an annular ring section[.] ;

FIG. 4 is a plan view of an annular closing ring assembly including three spaced and pivotally interconnected annular ring sections: and

FIG. 5. is a partial cross-sectional view of an annular two section closing ring positioned on the lip of a removable lid on the rim of an open head drum .

Delete the Brief Description of the Invention Section beginning on page 3 of the Specification and replace with the following Replacement Section:

DETAILED DESCRIPTION OF THE INVENTION

This invention is a safety improvement of the conventional annular drum-closing rings. Drum-closing rings secure a removable lid to an open head drum and are generally C-shaped in cross-section and are concave toward the peripheral edges of the drum. In normal operations, drum-closing rings are manually installed and removed.

Referring to the Drawings, Fig. 1 illustrates a conventional, annular two section closing ring designated by reference numeral 11 and formed of two spaced annular ring sections 12 and 13. The opposite and adjacent ends 14 and 15 of each annular ring section 12 and 13 are detachably connected by standard threaded nut-and-bolt style fasteners 16 and 17. The conventional annular two section closing ring 11 is positioned over and removably secured to the lip of a lid of a rim on an open head drum not shown. The purpose of the adjustable fasteners 16 and 17 is to connect and vary the inside diameter of the annular two section closing ring 11. This permits the closing ring 11 to be placed over and on and removably secured to the rim of an open end drum.

Fig. 2. is a plan view of a preferred embodiment of an annular closing ring assembly in accordance with this invention generally designated by the reference numeral 21 and formed of spaced annular ring sections 22 and 23 of C-shaped cross-section as shown in Fig. 3. The adjacent ends 24 of the spaced ring sections 22 and 23 at a first separation 25 are rotatably interconnected by hinge means designated generally by the reference number 26 which includes a hinge pin 27 and hinge members or leaves 28 welded or otherwise attached to the adjacent ends 24 of the spaced annular ring sections 22 and 23 at the first separation 25.

The opposite ends 34 of annular ring sections 22 and 23 at a second separation 35 are detachably connected together by a standard adjustable nut and bolt fastener 36. Thus the pivotally interconnected annular ring sections 22 and 23 are rotatable in the plane of the lid 30 and around the lip 29 and rim 31 of the open head drum 32 when the opposite ends 34 are disconnected. As shown in Fig. 5, annular ring section 22 is positioned on the lip 29 of a lid 30 on the rim 31 of an open head drum 32. A sealing gasket 33 is positioned between the lip 29 and rim 31.

This invention ~~claims~~ provides an annular drum-closing ring assembly 21 of two or more annular sections 22 and 23 positionable around and on ~~about~~ the annulus rim 31 of the drum 32. ~~A two-section closing ring will eliminate~~ The invention eliminates the spring pressure resistance of ~~current conventional one-section~~ drum closing rings. ~~And thus prevent this prevents~~ This avoids pinch points that ~~exist occur~~ when installing and removing ~~the one-section~~ conventional annular drum closing rings. This ~~multi-section drum-closing ring invention~~ makes the day-to-day function of installing and removing detachable drum lids 30 a much safer and easier operation.

These multi-section drum-closing rings are manufactured in the same manner as the existing one-section drum-closing rings with the difference of having one or more additional annular separations in the ring that covers the peripheral edges of the chime of the drum. With the additional annular separations or splits in the ring, it is necessary to have a connection between each ring section. The ring sections can be connected by any number of conventional drum closing-ring fastening and locking ~~methods~~ means. ~~Most~~ Many of these drum ring fastening and locking ~~methods~~ means are currently patented. ~~The most~~ A common drum ring ~~fastening~~ fastener is of the nut-and-bolt style-type fastener. These multi-section drum-closing rings can be fabricated using metal or any other suitable material.

One method of ~~fabrication for~~ fabricating the annular two-section ring assembly 21 is to install a hinge means 26 at a ~~first on one-closing ring~~ annular separation 25 between the spaced annular ring sections 22 and 23 and ~~install a~~ an adjustable conventional drum ring ~~fastening method on the~~ fastener 36 at an opposite annular separation 35 between the spaced annular ring sections 22 and 23. This would enable the operator to pivot and open and close the annular ring sections 22 and 23 without having to fight the spring pressure that is ~~present in the one-section drum~~ can occur when installing and removing conventional closing rings. This fabrication is illustrated in Fig. 2. The hinge leaves 28 can be riveted or welded to the adjacent ends 24 of the annular ring sections 22 and 23. The annular ring separations 25 and 35 are shown in Fig. 2. at 180 degrees apart. This is most efficient, but not altogether necessary.

~~The two section ring can also be fabricated with a conventional drum closing ring fastening method on each annular separation side. This type of fabrication is shown in FIG. 1. using the nut and bolt style fastening method on each side. An advantage of this configuration is a more compact packaging ability for shipping large quantities of drum closing rings, as the rings will separate into two complete halves. Again, the annular ring separations are shown in FIG. At 180 degrees apart, as this is the most efficient, but not altogether necessary.~~

Rings As shown in Fig. 4 an annular closing ring assembly 37 ~~of more than two~~ includes three annular ring sections 38, 39, and 40 pivotally interconnected by hinge means 41 and 42 be used to close the ~~chime rim~~ rim of a an open head drum. Rings of more than two annular sections could be more difficult to install and cause a greater problem in sealing the drum. Generally, the problem area for sealing drums is the area where the closing ring is split[;] ~~therefore,~~ Therefore the fewer amount of annular ring separations the better the seal of the lid to the drum.

This multi-section drum-closing ring may be a little more difficult to get a complete airtight seal for the contents of a drum, barrel, or container. However, not all applications of drum closure rings require a complete airtight seal. Many applications in day-to-day operations require the storage of ~~store~~ solids in drums; therefore, the annular multi-section drum-closing ring ~~assembly presents~~ assemblies 21 and 37 in Figs.2 and 4 respectively present much safer and easier ~~method for~~ methods of installing and removing lids on open head drums.

This invention has been described in detail. Modifications and alterations may be made without departing from the concept and scope of this invention and this specification. It is the intent of this specification to include all such modifications and alterations as they come within the concept and scope of the appended claims.